



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/935,164 | 08/23/2001 | Tomoichi Kamo | 500.40553X00 | 9227 |

20457 7590 06/26/2003

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-9889

EXAMINER

TSANG FOSTER, SUSY N

ART UNIT PAPER NUMBER

1745

DATE MAILED: 06/26/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 09/935,164 | Applicant(s) KAMO ET AL. | |
| | Examiner Susy N Tsang-Foster | Art Unit 1745 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed on 11/30/2001 has been considered by the Examiner.

Drawings

3. The drawings are objected to because the separate labels for Figure 18 A and Figure 18 B are missing and the drawings instead show a Figure 18 label in contrast to the brief description of drawings in the specification which refers to Figure 18 A and Figure 18B. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: On page 24, reference labels 52 and 53 are not in the Figures. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because it uses legal phraseology. Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities:

On page 13, Formula (1) is missing.

On page 14, Formula (2) and Formula (3) are missing.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1745

9. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, the limitation "said vessel for storing said liquid fuel has an exhaust hole of a gas-liquid separation type" is indefinite because it is unclear what "gas-liquid separation type" means and it is also unclear how an exhaust hole can be characterized as a gas-liquid separation type since an exhaust hole is just an opening. For the purposes of prosecution, this limitation is interpreted as "said vessel for storing said liquid fuel has an exhaust hole".

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-10, and 12 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by the JPO Machine Translation for JP 2000-268836 A.

See Figures 1-5, and 7, and paragraphs 2, 9, 11, 14-16, 18, 20 of the JPO Machine Translation for reference.

Art Unit: 1745

12. Claims 1-4, and 6-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dodge (US 5,458,989).

See abstract; Figures 9, 11, 12, 14, 19, 21a-27; 29; 30b; col. 9, lines 35-52; col. 10, lines 4-35; col. 15, lines 54-67; col. 16, lines 1-15; col. 24, lines 15-67; col. 25, lines 1-8; col. 26, lines 23-67; col. 27, lines 20-26; col. 28, lines 3-13; col. 29, lines 63-67; col. 30, lines 1-10; col. 32, lines 7-23; col. 33, lines 45-55; col. 34, lines 61-67; and col. 35, lines 1-18 of the reference.

13. Claims 1-4, and 6-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by WO 99/60642.

See abstract; Figures 1-7; page 1, lines 17-33; page 2, lines 1-9; page 5, lines 13-30 of the reference.

14. Claims 1-3, 6, and 8-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Steyn (US 6,007,932).

See abstract; Figures 1-6; col. 2, lines 21-56; col. 4, lines 4-67; col. 5, lines 1-50; col. 6, lines 40-67; col. 7, lines 60-65 of the reference.

15. Claims 1-3, 6, 8-10 and 12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Pan (US 2002/0182475 A1).

See Figures 2 and 4; paragraphs 10, 26, 33, 37; 45 of the reference.

Art Unit: 1745

16. Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sterzel (US 4,774,153).

See abstract; Figures 1, 2, 3a, and 3b; col. 4, lines 15-57; col. 5, lines 1-57; and col. 6, lines 13-48 of the reference.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hockaday (6,326,097 B1) in view of the JPO Machine Translation for JP 2000-268836 A.

Hockaday discloses a portable electronic equipment wherein a fuel cell has an anode for oxidizing methanol, a cathode for reducing oxygen, and an electrolyte membrane for insulating the anode from the cathode, and a secondary battery that is charged by a charger configured to include the fuel cell (see Figure 14 and col. 13, line 66 to col. 14, line 17).

Hockaday does not disclose that the fuel cell has a construction of a hollow support, and has a plurality of generator sections consisting of an anode, electrolyte membrane, cathode, and diffusion layer on the outer periphery of the hollow support and the generator sections are

Art Unit: 1745

electrically connected to each other to form a fuel cell generator and a charger configured to include the fuel cell generator.

The JPO Machine Translation for JP 2000-268836 A teaches a fuel cell generator that comprises a fuel cell having a construction of hollow support made from polyperfluorosulfonic acid and two generator sections consisting of an anode, electrolyte membrane, cathode, and a diffusion layer on the outer periphery of the hollow support and the two generator sections are electrically connected to each other to form a fuel cell generator (Figure 7) and a fuel cell generator having this configuration enables liquid method fuel to be absorbed in the polyperfluorosulfonic acid support and to be supplied to the adjacent negative electrode by capillary phenomenon and even if the level of liquid fuel is decreased, the liquid fuel is still continuously fed to the negative electrode such that stable power generation can be obtained (see abstract and paragraphs 55-57 of machine translation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a fuel cell generator having a construction of hollow support made from polyperfluorosulfonic acid and two generator sections consisting of an anode, electrolyte membrane, cathode, and a diffusion layer on the outer periphery of the hollow support and the two generator sections are electrically connected to each other to form a fuel cell generator because a fuel cell generator having this configuration enables liquid method fuel to be absorbed in the polyperfluorosulfonic acid support and to be supplied to the adjacent negative electrode by capillary phenomenon and even if the level of liquid fuel is decreased, the liquid fuel is still continuously fed to the negative electrode such that stable power generation can be obtained from the fuel cell generator.

19. Claims 3, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sterzel (US 4,774,153) in view of Dodge.

Sterzel discloses all the limitations of claims 3, and 8-10 (see above) except that a diffusion layer is disposed around the cathode.

Dodge teaches disposing a diffusion layer around the cathode to better distribute gas over the whole surface area of the cell (col. 33, lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to dispose a diffusion layer around the cathode of Sterzel because the diffusion layer improves the distribution of gas over the whole surface area of the cell and would improve the power generation of the fuel cell.

Conclusion

Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (703) 305-0588. The examiner can normally be reached on Monday through Thursday from 9:30 AM to 8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.

The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After-Final communications.

Art Unit: 1745

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

st/22 June 2003

Ausay Isany Foster